

IN THE SPECIFICATION:

Please amend paragraph number [0003] as follows:

[0003] State of the Art: Semiconductor devices are subjected to a series of test procedures in order to confirm functionality and yield, and to assure quality and reliability. This testing procedure conventionally includes “probe testing,” in which each individual ~~dice~~, die, while still on a wafer, ~~are~~ is initially tested to determine functionality and speed. Probe cards are used to electrically test dice at that level. The electrical connection interfaces with only a single die at a time in a wafer before the ~~dice are~~ die is singulated from the wafer.

Please amend paragraph number [0005] as follows:

[0005] The packaged devices are then subjected to another series of tests, which include burn-in and discrete testing. Discrete testing permits the devices to be tested for speed and for errors which may occur after assembly and after burn-in. Burn-in accelerates failure mechanisms by electrically exercising the devices (devices under test or DUT) at elevated temperatures and elevated dynamic biasing schemes. This induces infant mortality failure mechanisms and ~~elicit~~ elicits potential failures which would not otherwise be apparent at nominal test conditions.

Please amend paragraph number [0008] as follows:

[0008] It is proposed that devices be packaged without conventional lead frames. This creates two problems for conventional test methods. Firstly, discrete testing is more difficult because the conventional lead frame package is not used. Furthermore, multiple devices may be assembled into a single package, thereby reducing the performance of the package to that of the die with the lowest performance. This is because the ability to presort the individual ~~die~~ dice is limited to that obtained through probe testing. Secondly, the packaging may have other limitations of package assembly defect mechanisms which are aggravated by burn-in stress conditions so that the packaging becomes a limitation for burn-in testing.

Please amend paragraph number [0013] as follows:

[0013] This technique allows all elements of the burn-in/test fixture to be 100% reusable, while permitting testing of each individual ~~die~~ die in a manner similar to that accomplished with discrete packaged semiconductor devices.

Please amend paragraph number [0017] as follows:

[0017] Recent developments in fabrication technology have resulted in such speed characterizations being more uniform on any given wafer. This has made it possible to provide wafers in which a majority of good dice have speed grades which do not greatly exceed an average for the wafer. Such uniformity, along with an ability to achieve fuse repairs and patches, ~~have~~ has made wafer scale integration of arrays and cluster packaging practical.

Please amend paragraph number [0021] as follows:

[0021] According to the present invention, burn-in and testing are accomplished on an uncut wafer by mounting the wafer to a reusable burn-in/test fixture. The test fixture has contact tips thereon in order that electrical contact may be established for each individual ~~die~~ die on the wafer. The fixture consists of two halves, one of which is a wafer cavity plate for receiving the wafer as the devices under test (DUT), and the other half establishes electrical contact with the wafer and with a burn-in oven.

Please amend paragraph number [0028] as follows:

[0028] This technique allows most or all elements of the burn-in/test fixture to be 100% reusable, while permitting testing of each individual ~~die~~ die while on the wafer in a manner similar to that accomplished with discrete packaged semiconductor devices.

Please amend paragraph number [0033] as follows:

[0033] FIG. 4 shows an ~~alternate~~ alternative embodiment of the invention, in which probe contacts are located on the support plate.

Please amend paragraph number [0036] as follows:

[0036] In the preferred embodiment, a probe plate is fabricated on a substrate 63 (FIG. 4) and has conductive patterns therein. The conductive patterns terminate in conductive bumps (for example) or pads. It is also possible to form the substrate 63 so that it is thin enough to be at least flexible. By way of example, such a partially flexible substrate 63 may be formed from silicon or ceramic, which has been made thin enough that it is able to be flexed substantially more than the wafer 30. Circuit traces on the substrate 63 communicate with individual contacts on the edge connectors 23'. This permits the edge connectors 23' to be used to connect the contact pads on the dice with external electrical equipment (not shown). While the edge connectors 23' are shown as being generally aligned with the individual ~~dies~~ dice on the wafer, it is possible to have the circuit traces extend to any convenient location on the substrate 63.

Please amend paragraph number [0045] as follows:

[0045] In an ~~alternate~~ alternative embodiment, shown in FIG. 4, a bottom surface of the support plate 12' has a number of contact tips 31' extending therefrom. The contact tips 31' are sufficiently flexible to compensate for variations in die pad height. The contact tips 31' align with the wafer receiving cavity 17' in a manner which, when a wafer is located in the wafer receiving cavity 17', the contact tips 31' electrically communicate with individual contact pads on the dice. The substrate 63 can be formed as an elastomeric mat interposed between the wafer 30 and the support plate 12'. This configuration would appear as shown in FIG. 4, with substrate 63 being the elastomeric mat. The elastomeric mat would conduct in patterns corresponding to the conductive bumps or pads on the contact areas of the wafer 30 in order to provide positive electrical contact between the support plate 12' and the wafer 30.

Please amend paragraph number [0046] as follows:

[0046] In the ~~alternate~~ alternative embodiment, the main plate portion 21' of the support plate 12' includes a series of circuit traces (not shown). The circuit traces communicate with individual contacts on the edge connectors 23'. This permits the edge connectors 23' to be used to connect the contact pads on the dice with external electrical equipment (not shown).